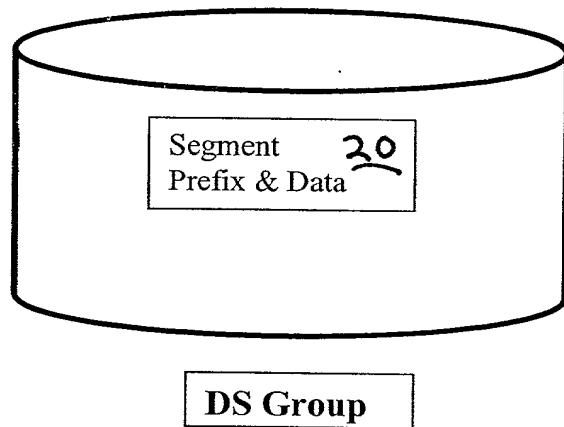
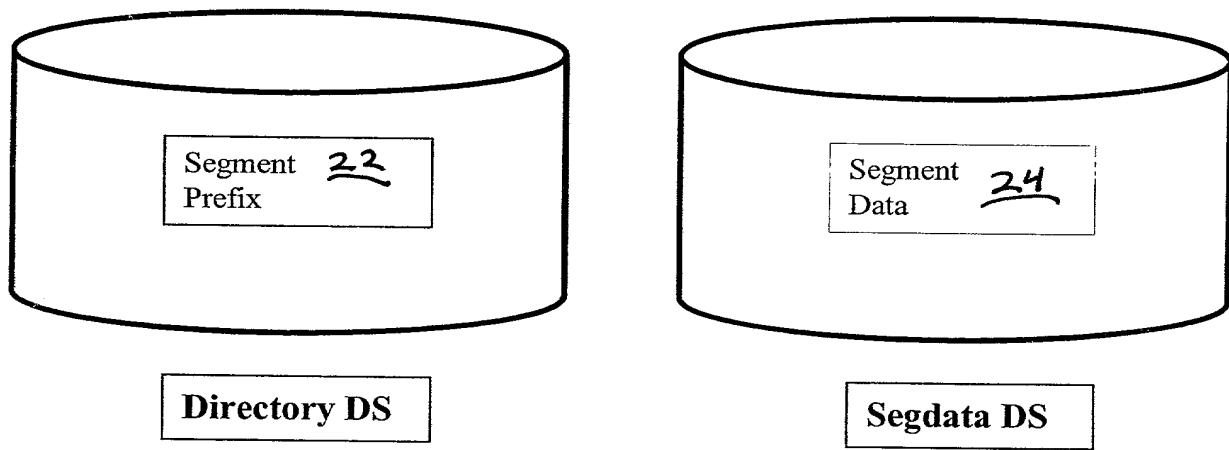


### Current IMS Database



*Fig 1A*  
(Prior Art)

### Invention Database



*Fig 1B*

## Layout of Segment in Directory Dataset

Segment Prefix <u>26</u>		Segment Data <u>28</u>		
Seg Code & Delete Byte <u>30</u>	Prefix Pointers <u>32</u>	Pointer to Seg Data <u>34</u>	Metadata	
			Seg Key <u>35</u>	Born-On-Date <u>36</u>

**Figure 2A. Split Segment Composition – Prefix Portion with Metadata in segment data portion**

## Layout of Segment in Segdata Dataset

Segment Prefix <u>26</u>			Seg Data <u>28</u>
Seg Code & Delete Byte <u>30</u>	Prefix Pointers <u>32</u>	Metadata	
		Seg Key <u>35</u>	Born-On-Date <u>36</u>

**Figure 2B. Split Segment Composition – Prefix Portion with Metadata in segment prefix portion**

### Layout of Segment in Segdata Dataset

Segment Prefix <u>40</u>	Segment Data <u>42</u>	Trans-parent <u>44</u>
Seg code & delete byte <u>46</u>	User Data <u>48</u>	Born on Date <u>50</u>

Fig. 3

DBD NAME=IVPDB1, ACCESS=(HIDAM, OSAM) 122

DIR DD1=DFSIVD1, SIZE=2048, UOW=(500, 50, 10) ←

DATASET DD1=DFSIVD1A, DEVICE=3380, SIZE=2048

SEGM NAME=A1111111, PARENT=0, BYTES=40, RULES=(LLV, LAST), PTR=(TB, CTR)

FIELD NAME=(A1111111, SEQ, U), BYTES=010, START=00001, TYPE=C

FIELD NAME=A9999999, BYTES=010, START=00011, TYPE=C

LCHILD NAME=(A1, IVPDB1I), POINTER=INDX, RULES=LAST

LCHILD NAME=(A1X, IVPDB1X), POINTER=INDX

XDFLD NAME=AXXXXXXX, SEGMENT=A1111111, SRCH=(A9999999)

LCHILD NAME=(C1X, IVPDB1Z), POINTER=INDX

XDFLD NAME=CXXXXXXX, SEGMENT=C1111111, SRCH=(C9999999)

DATASET DD1=DFSIVD1B, DEVICE=3380, SIZE=4096 X

SEGM NAME=B1111111, PARENT=A1111111, BYTES=(1000, 50), RULES=(LLV, LAST), PTR=(TB)

FIELD NAME=(B1111111, SEQ, M), BYTES=010, START=00003, TYPE=C

FIELD NAME=/SXB1

LCHILD NAME=(B1X, IVPDB1Y), POINTER=INDX

XDFLD.. NAME=BXXXXXXX, SEGMENT=B1111111, SRCH=(B1111111), SUBSEQ=(/SXB1)

DATASET DD1=DFSIVD1C, DEVICE=3380, SIZE=8192 X

SEGM NAME=C1111111, PARENT=B1111111, COMPRTN=(DFSKMPX0, DATA, INIT), RULES=(LLV, LAST), PTR=(TB), BYTES=(8000, 50)

FIELD NAME=(C1111111, SEQ, U), BYTES=010, START=00003, TYPE=C

FIELD NAME=C9999999, BYTES=010, START=00011, TYPE=C

**DIRGEN**

DBDGEN  
FINISH  
END

**Figure 4a Sample HIDAM DBD**

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```
DBD      NAME=IVPDB2, ACCESS=HDAM, RMNAME=(DFSHDC40,4,1000)
DIR  DD1=DFSIVD2, UOW=(100,10)  ←

DATASET DD1=DFSIVD2A, DEVICE=3380, SIZE=2048
SEGMENT NAME=A1111111, PARENT=0, BYTES=40, RULES=(LLL, LAST),      X
          COMPRTN=(DFSKMPX0, DATA, INIT)
FIELD    NAME=(A1111111, SEQ, U), BYTES=010, START=00001, TYPE=C

DATASET DD1=DFSIVD2B, DEVICE=3380, SIZE=4096
SEGMENT NAME=B1111111, PARENT=A1111111, BYTES=(1000, 50),      X
          RULES=(LLV, LAST), PTR=(TB)
FIELD    NAME=(B1111111, SEQ, U), BYTES=010, START=00003, TYPE=C

DATASET DD1=DFSIVD2C, DEVICE=3380, SIZE=8192
SEGMENT NAME=C1111111, PARENT=B1111111, COMPRTN=(DFSKMPX0, DATA, INIT),
          RULES=(LLV, LAST), PTR=TB, BYTES=8000
FIELD    NAME=(C1111111, SEQ, U), BYTES=010, START=00001, TYPE=C

DIRGEN

DBDGEN
FINISH
END
```

**Figure 43 Sample HDAM DBD**

## Secondary Index

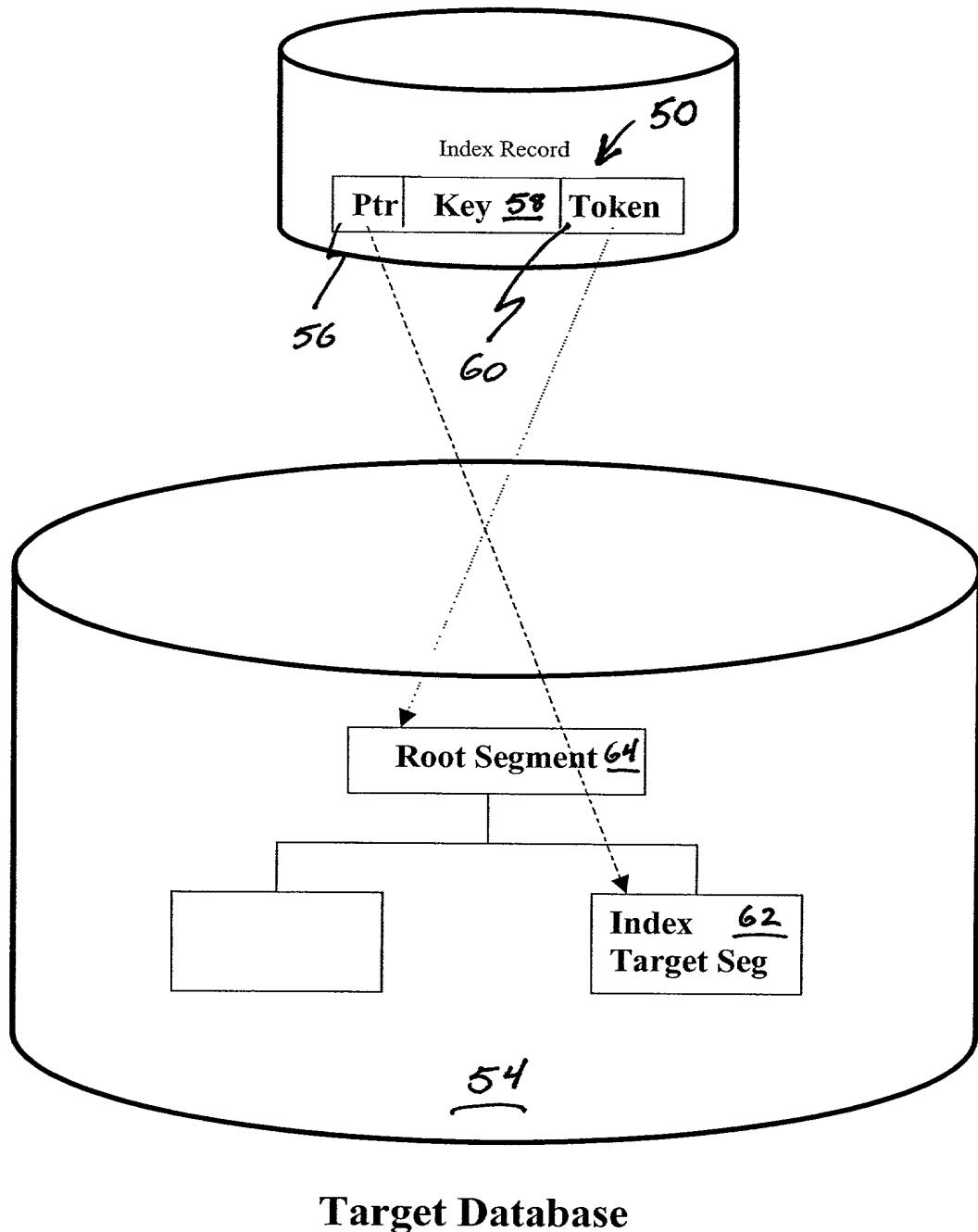


Figure 5 Secondary Index Architecture

## Secondary Index

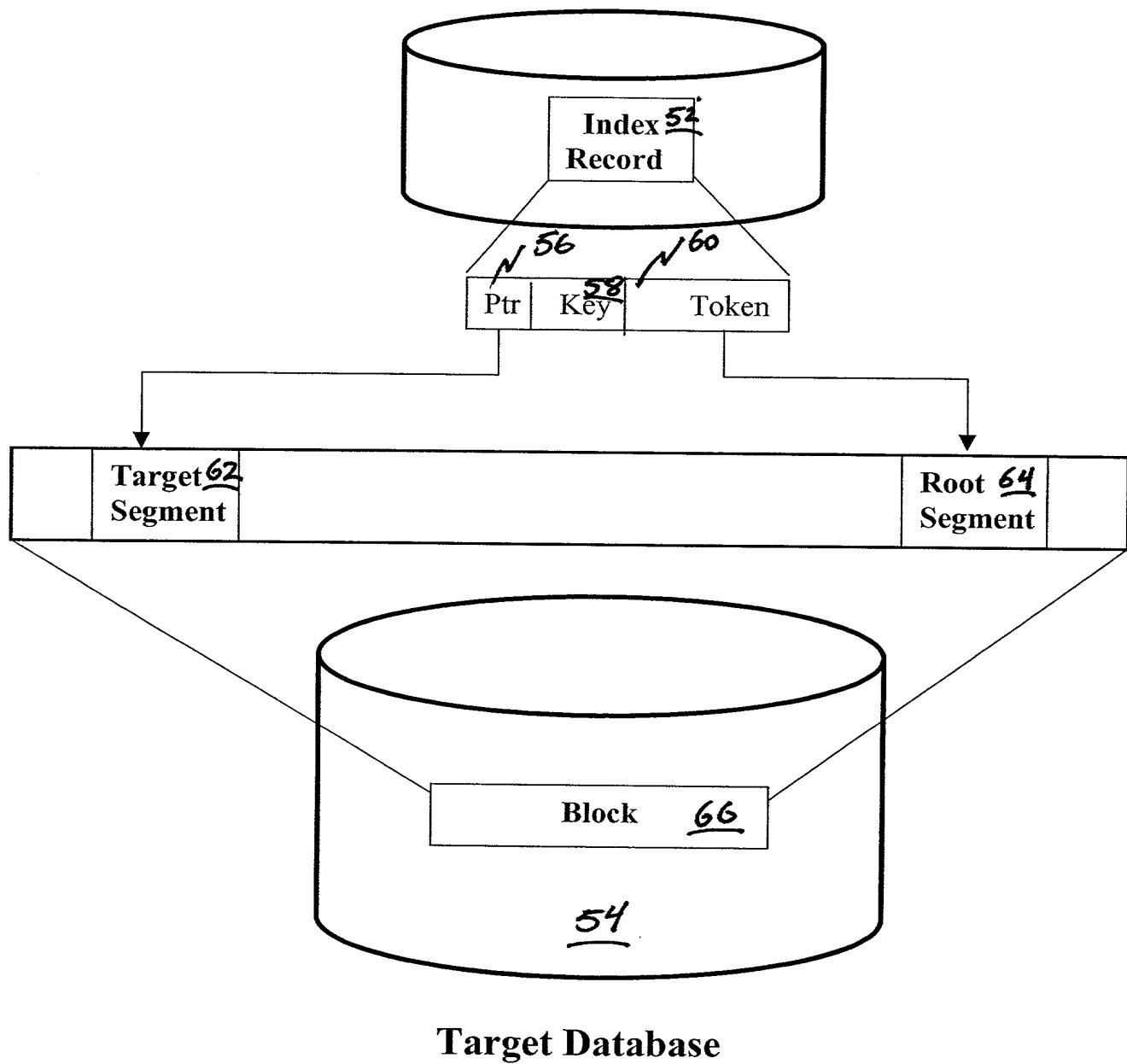


Figure 6 Secondary Index Before Reorganizing

## Secondary Index

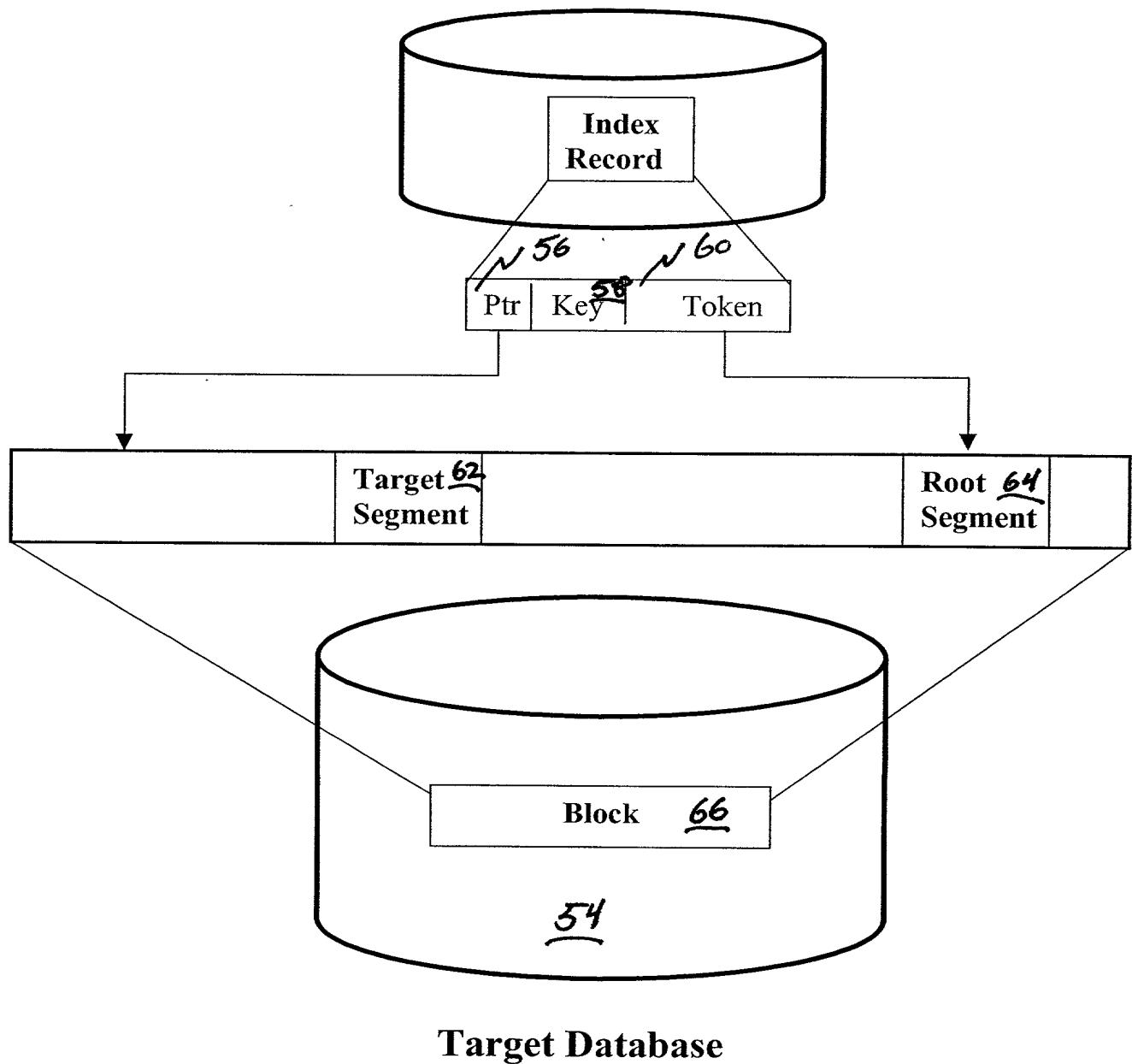
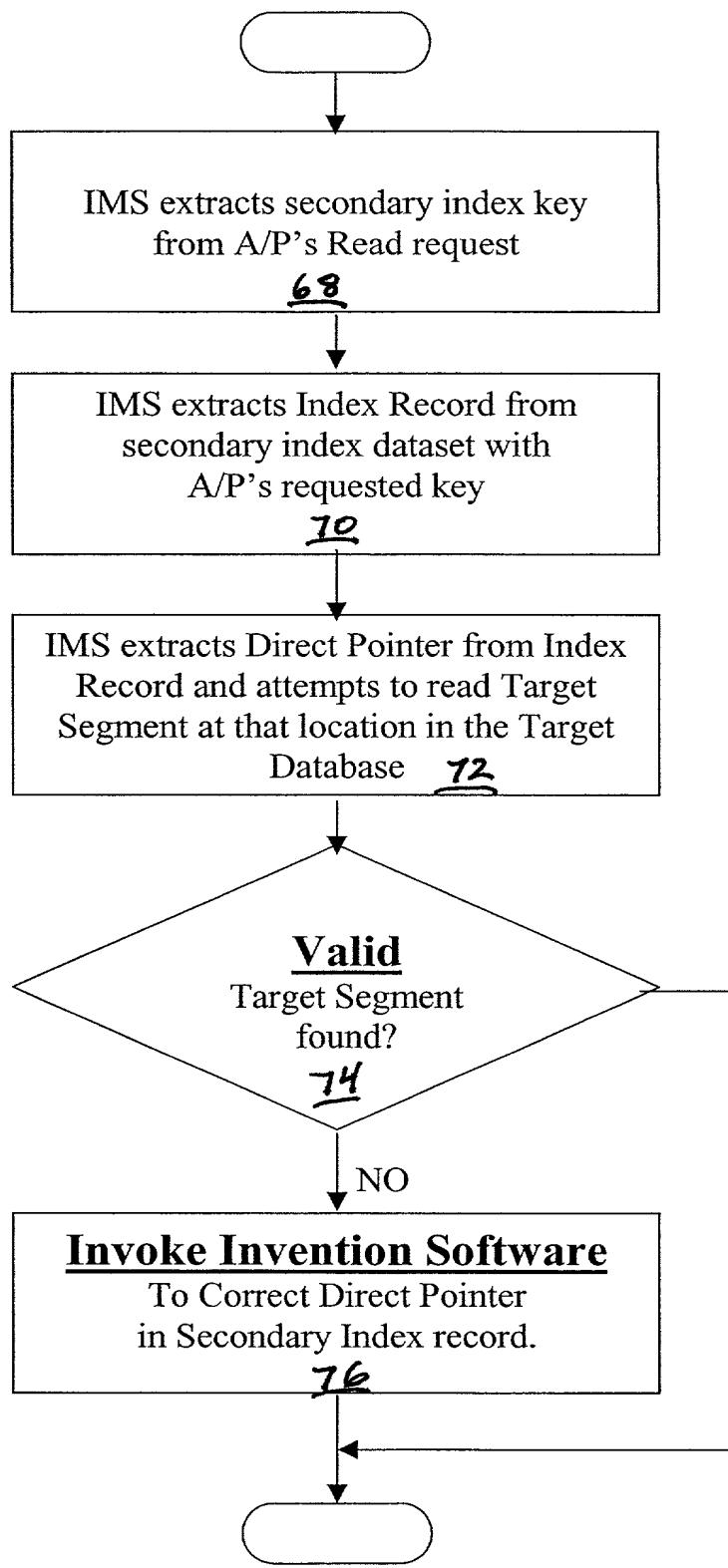
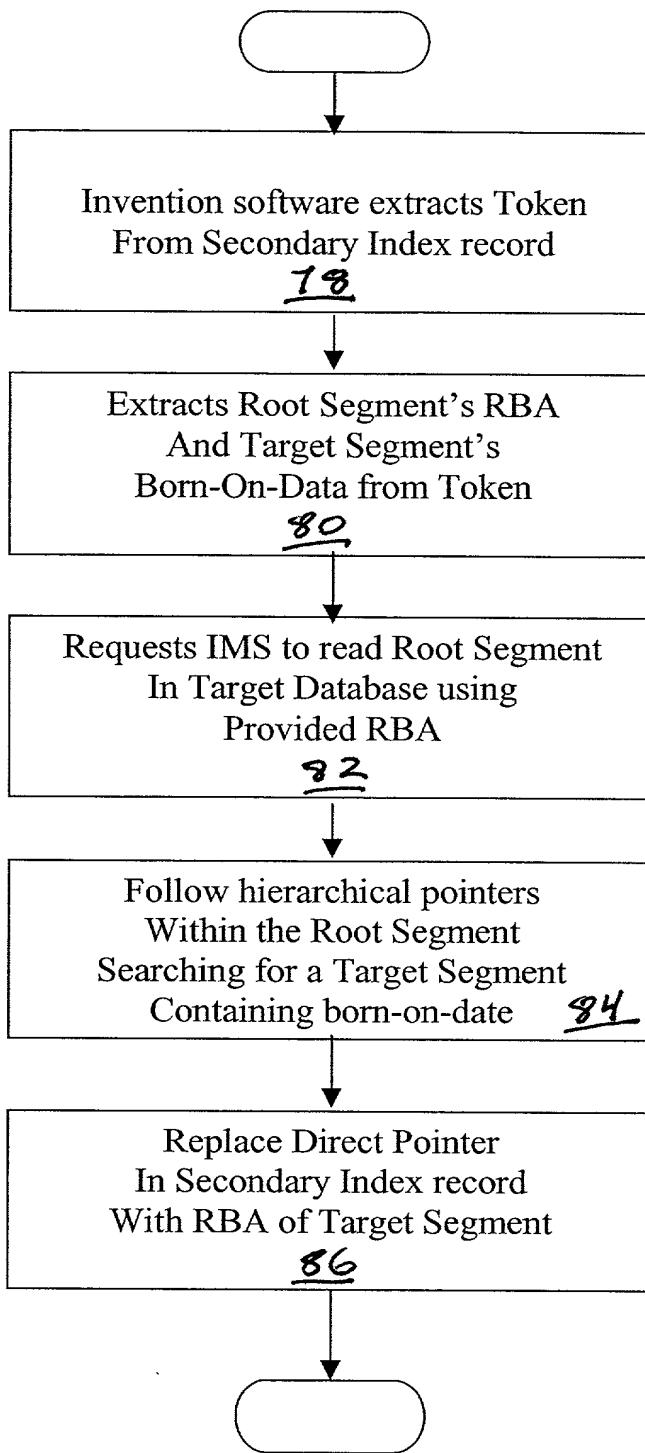


Figure 7 Secondary Index After Reorganizing



**Figure 8 Retrieving a Target Segment via a Secondary Index**



**Figure 9** Correcting Direct Pointer in a Secondary Index

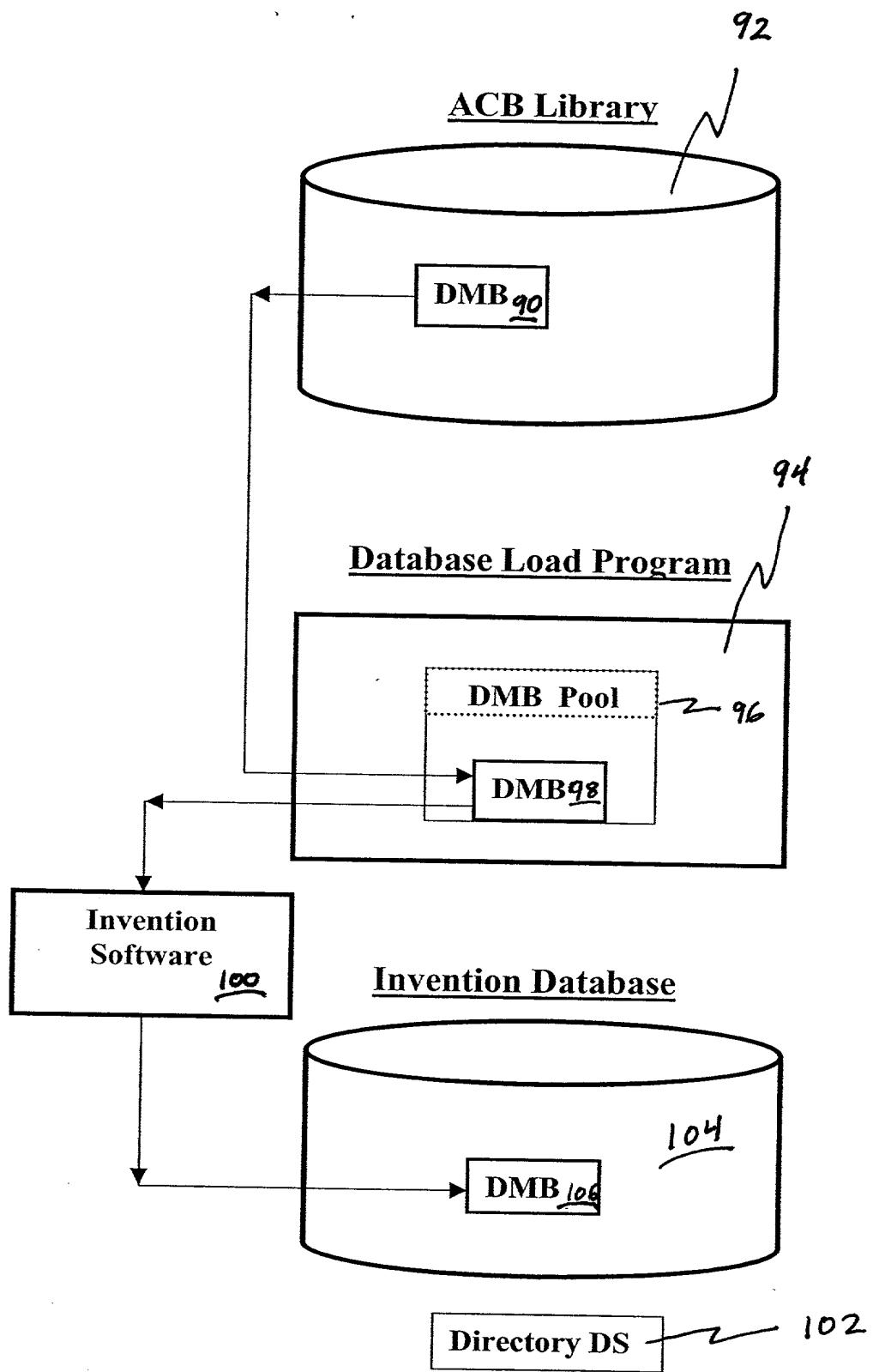
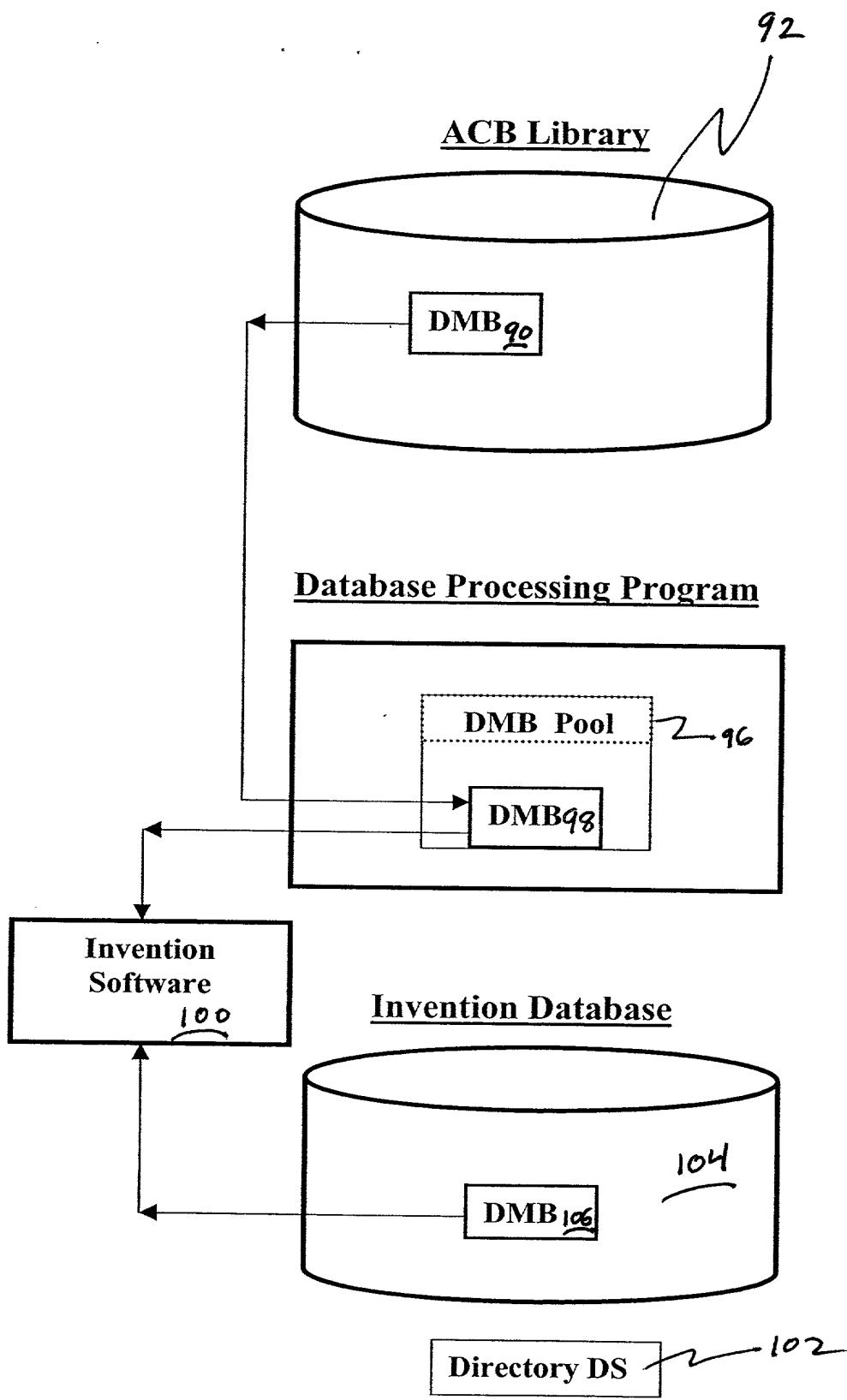


Figure 10 Saving the Database Definition at DB Load Time



**Figure 11 Checking the Database Definition at DB Processing Time**

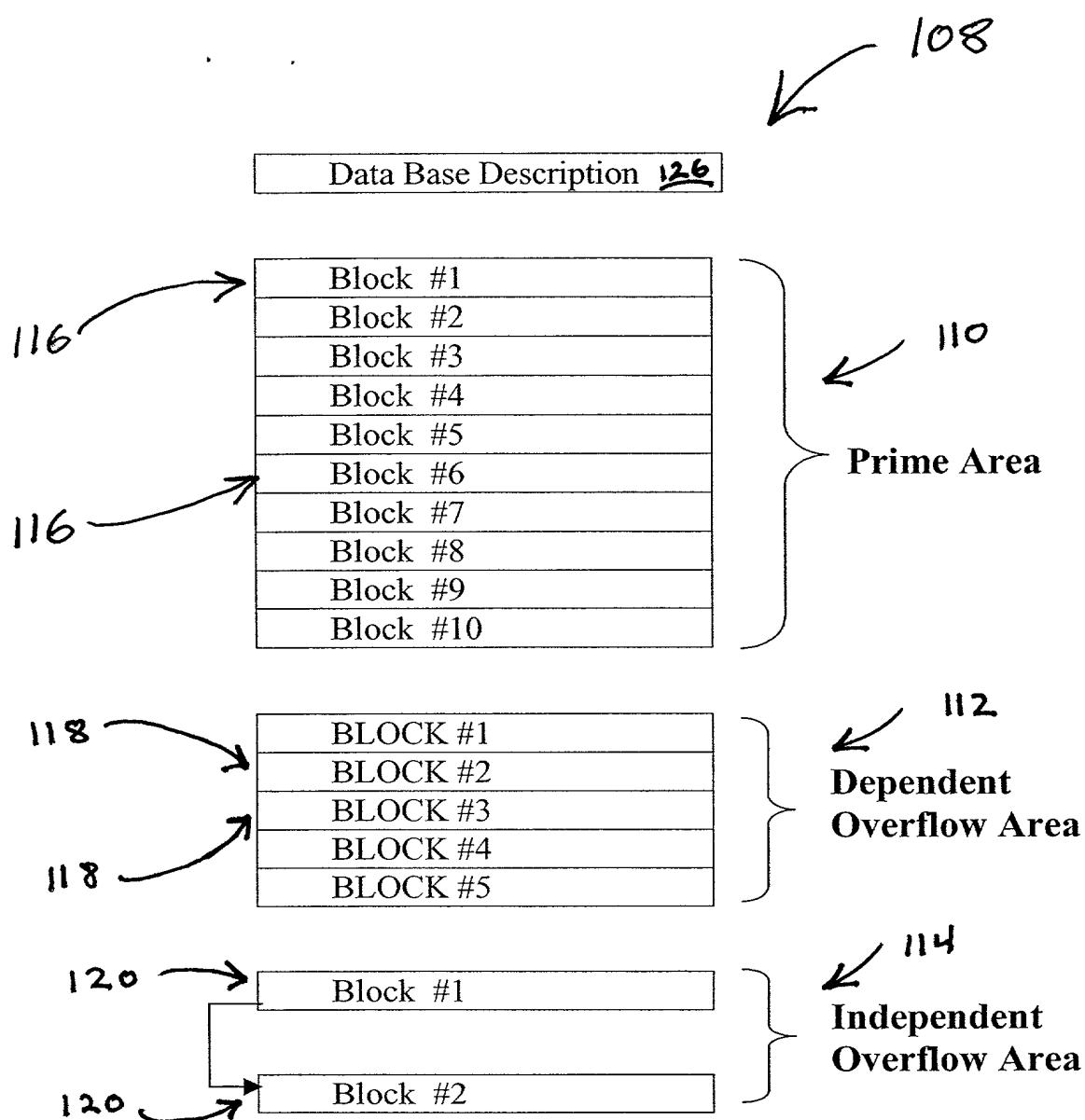
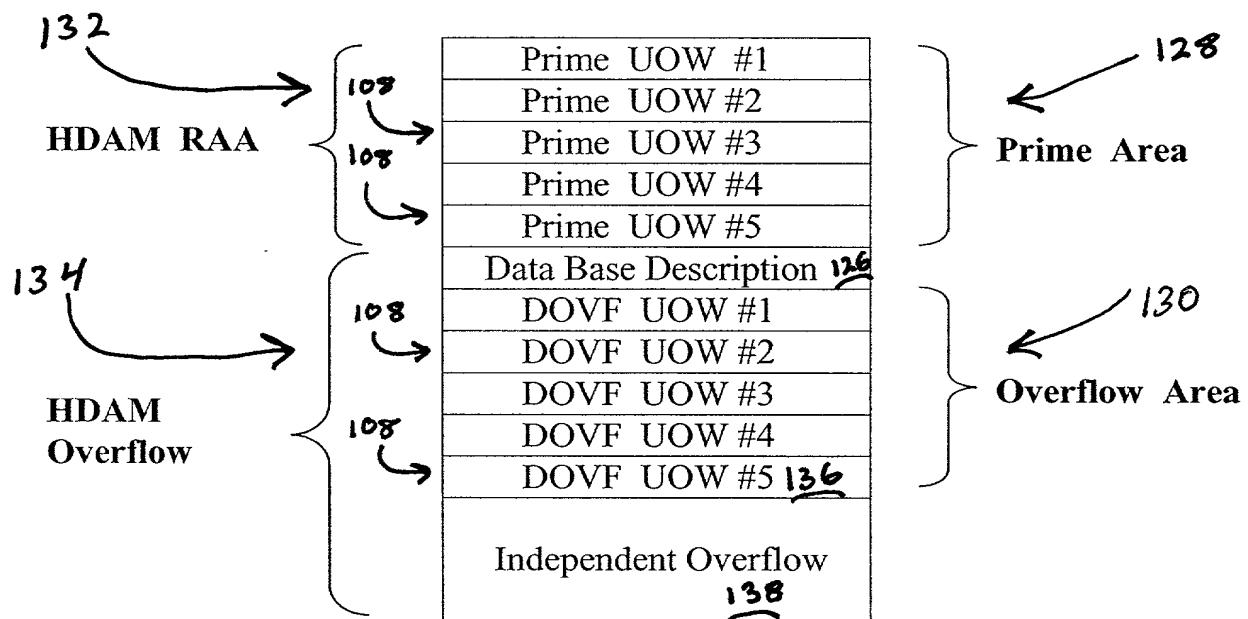
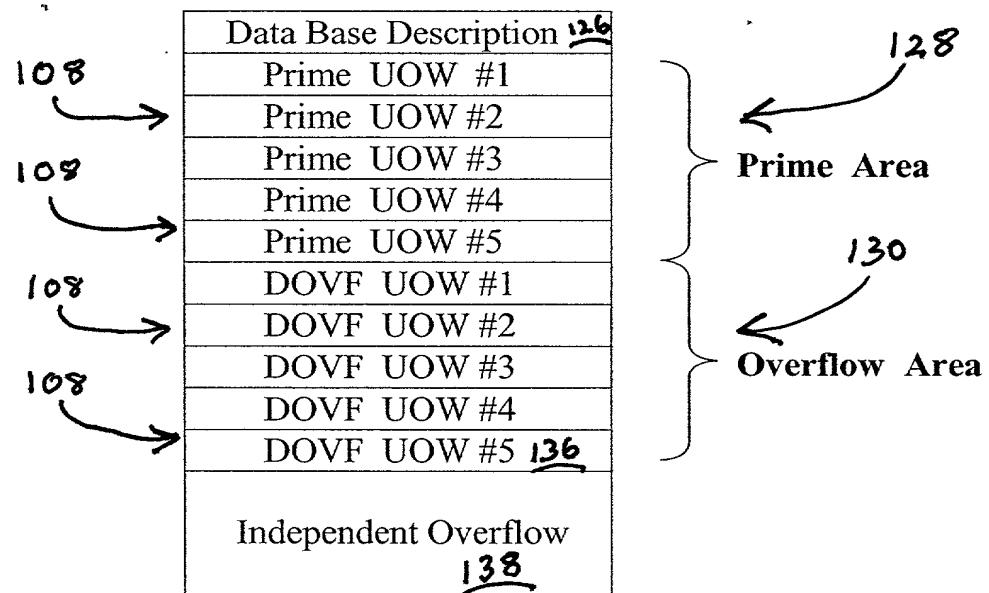


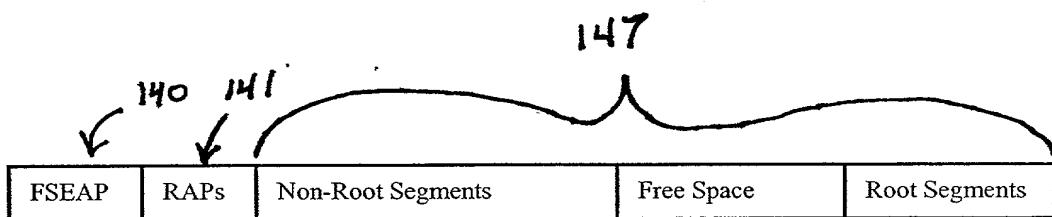
Figure 12. Unit Of Work (UOW) Architecture



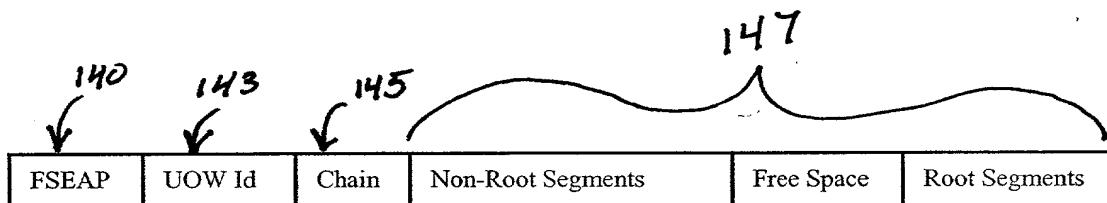
**Figure 13. HDAM UOW Architecture**



**Figure 14. HIDAM UOW Architecture**



**Figure 15. Prime & DOVF Block Composition**



**Figure 16. IOVF Block Composition**

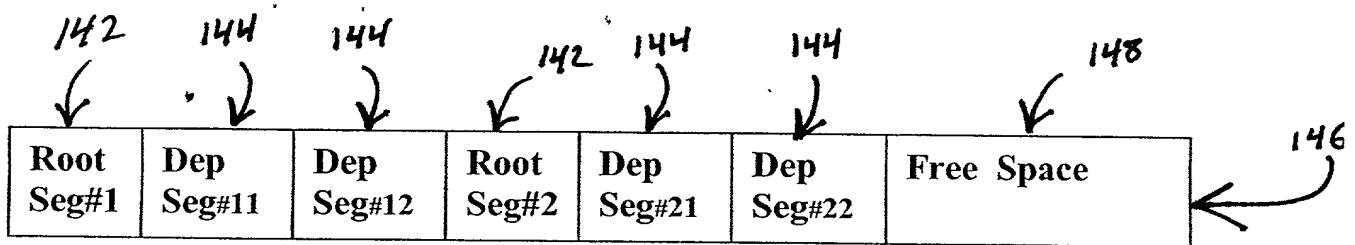


Figure 17 Block Composition Using IMS' Space Management

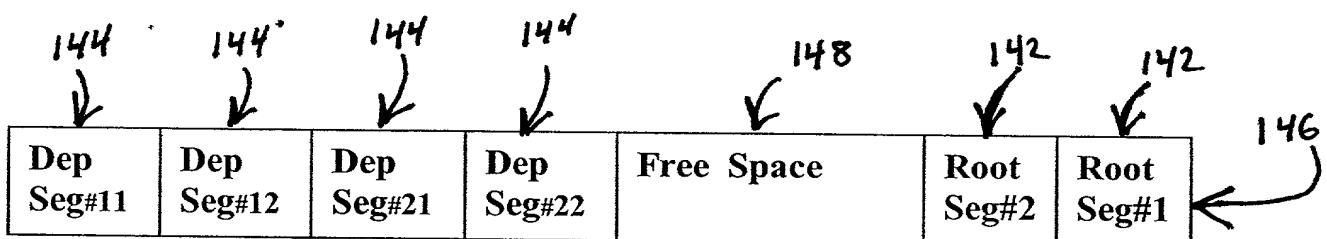
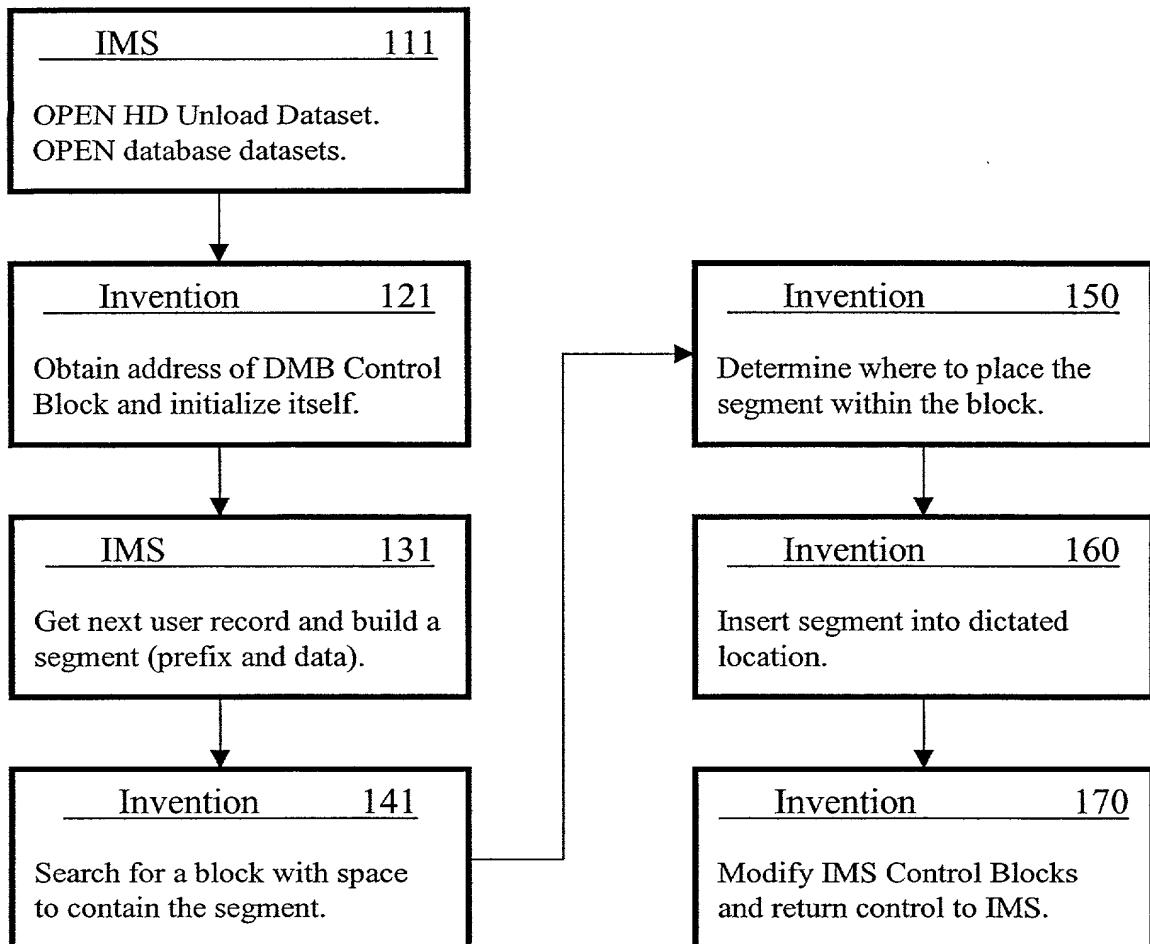
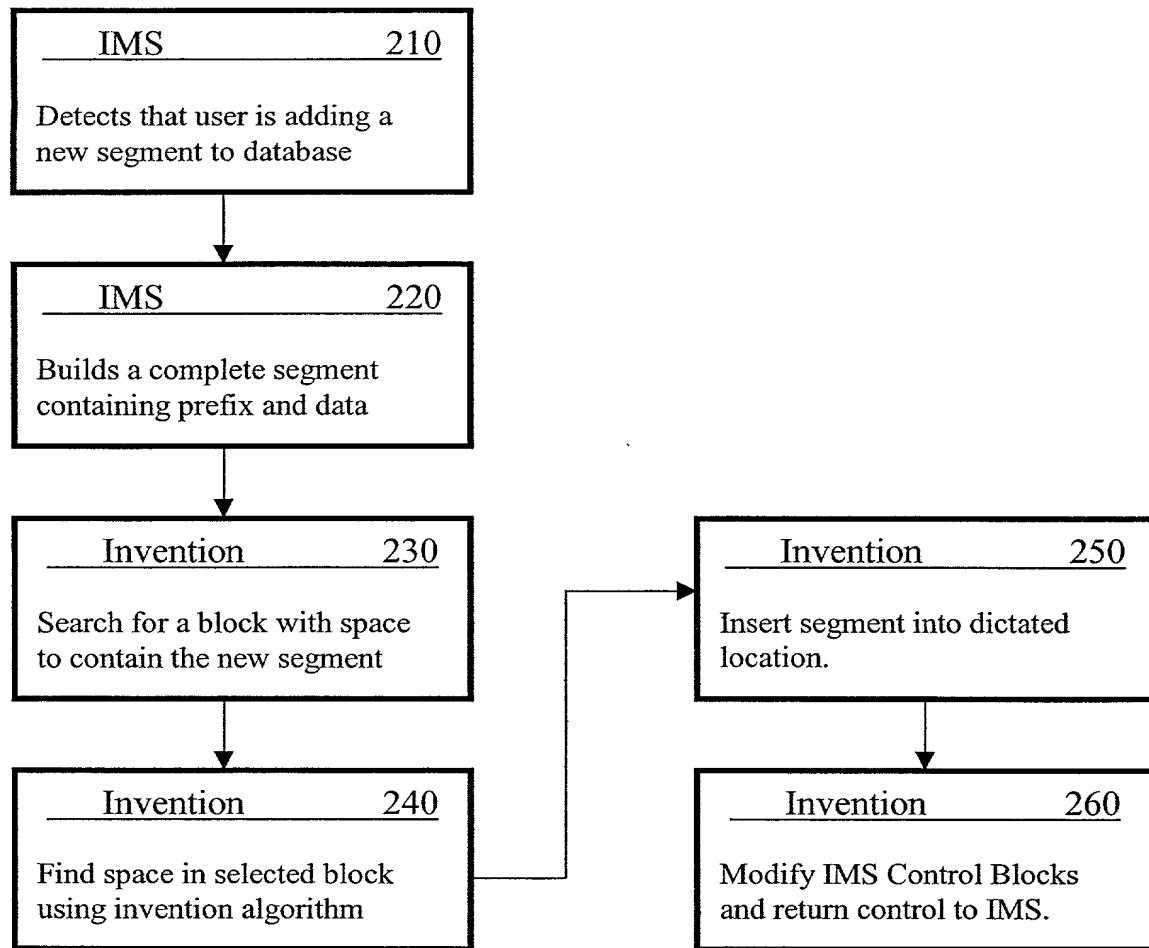


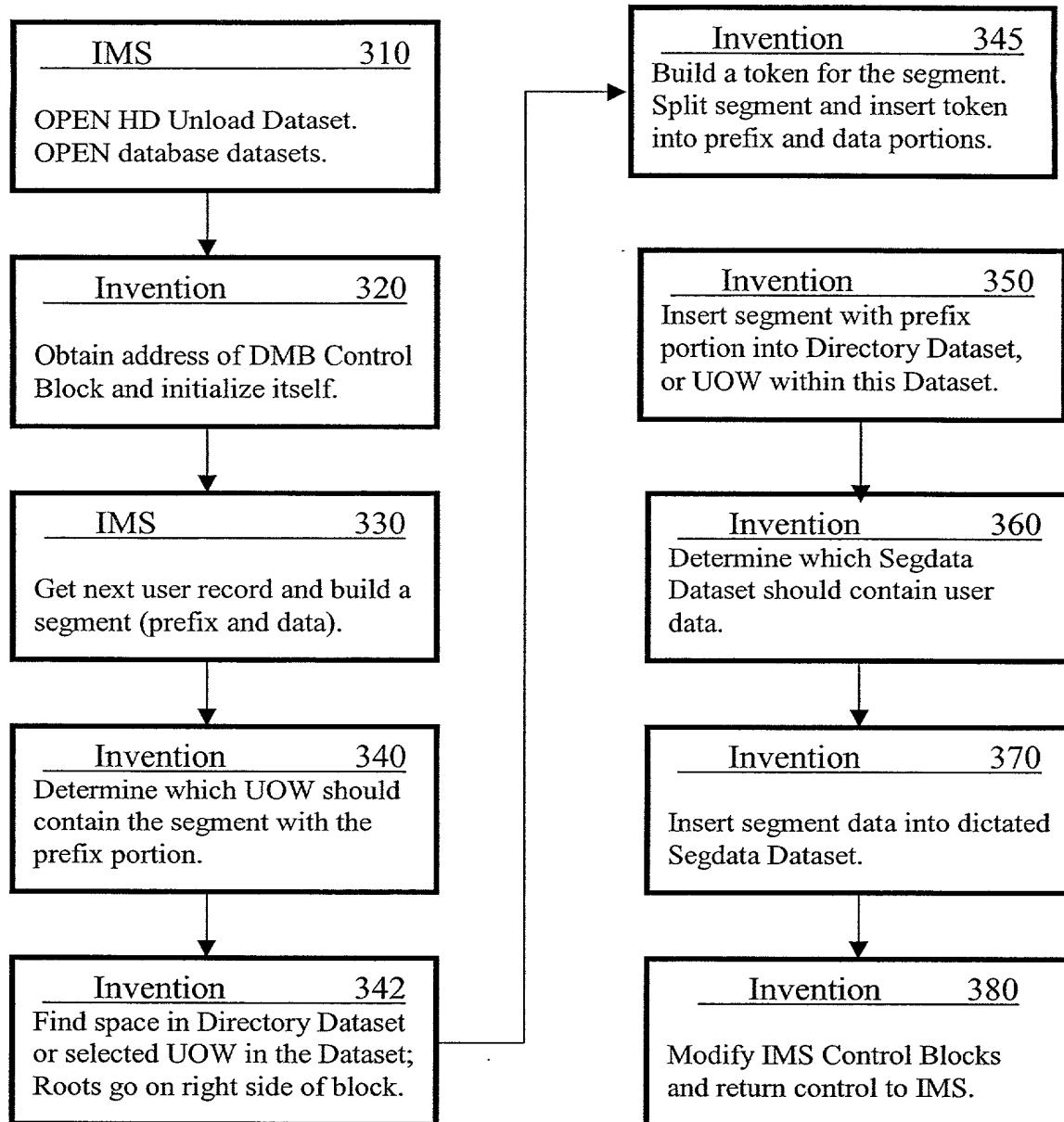
Figure 18 Block Composition Using Invention's Space Management



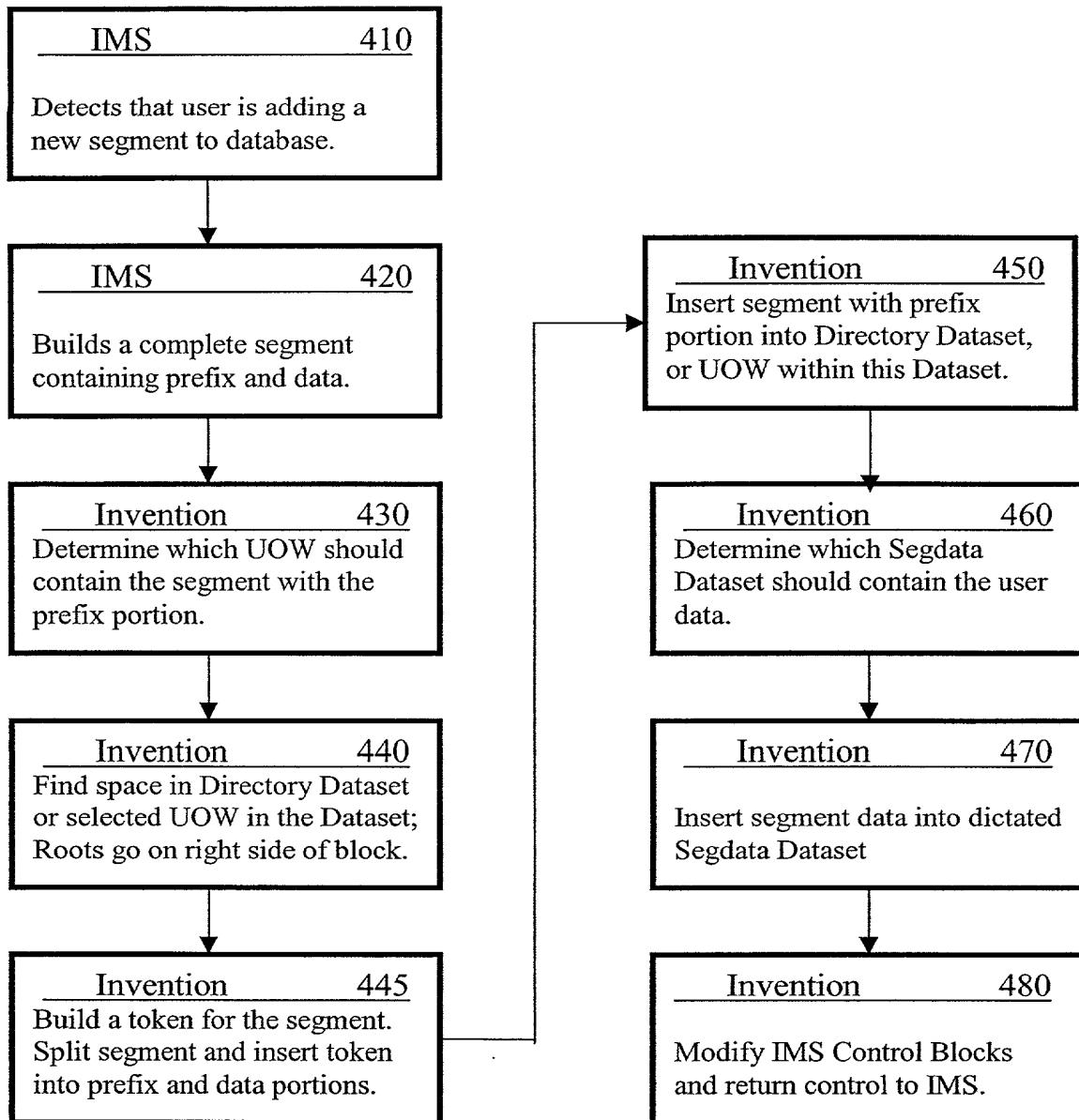
**Figure 19 Space Management at Database Load Time**



**Figure 20 Space Management at Database Update Time**



**Figure 21. Space Management at Database Load Time**



**Figure 22. Space Management at Database Update Time**